

REMARKS

A marked-up version of the amended claims is attached at the end of this amendment. Applicants respectfully request allowance of claims 1-16 and 20-22.

**The current status of the claims**

The election to prosecute claims 1-16 is affirmed. Claims 17-19 are withdrawn.

The instant Amendment A is responsive to the first Office Action on the merits dated December 19, 2002. In that Office Action:

Claims 1-6, 8, and 10-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al. (U.S. 5,998,925).

Claims 7, 9, and 16 are indicated as containing allowable subject matter.

**Claims 7, 9, and 16, which were indicated as containing allowable subject matter, have been placed into independent form and should be allowed**

Claims 7, 9, and 16 were indicated as containing allowable subject matter, but were objected to as being dependent from a rejected base claim. These claims have been rewritten in independent form retaining the allowable subject matter. Accordingly, Applicants respectfully submit that amended claims 7, 9, and 16 are allowable, and ask for an early indication of allowance of these claims.

**Amended claim 1 patentably distinguishes over the cited references**

Claim 1 has been amended to call for a frame including a surface having a roughened portion contacting the epoxy. Shimizu discloses an uneven surface insofar as the frame 105 includes a recess inside which the nitride compound and epoxy are

located. However, this recess is not a roughened surface (for example, including ridges, grooves, dimples, and/or other shapes as specified at least at ¶ [0025] of the present application).

Applicants therefore respectfully submit that amended claim 1, and claims 2-6, 8, 20, and 21 that depend therefrom, patentably distinguish over the cited references, and ask for an early indication of allowance of these claims.

**Amended claim 10 patentably distinguishes over the cited references**

Claim 10 has been amended to call for a frame including a surface portion contoured to increase a surface area in contact with the phosphor embedded epoxy. The frame recess of Shimizu is not contoured to increase a surface area in contact with phosphor embedded epoxy, as disclosed at least at ¶ [0025] of the present application.

Applicants therefore respectfully submit that amended claim 10, and claims 11-15 and 22 that depend therefrom, patentably distinguish over the cited references, and ask for an early indication of allowance of these claims.

**New claim 20 patentably distinguishes over the cited references**

New claim 20 calls for the roughened portion to include at least one of ridges, grooves, and dimples. The frame of Shimizu does not include ridges, grooves, or dimples in contact with the epoxy. The subject matter of new claim 20 is disclosed at least at ¶ [0025] of the present application.

Applicants therefore respectfully submit that new claim 20 contains allowable subject matter, and ask for an early indication of allowance of these claims.

**New claim 21 patentably distinguishes over the cited  
references**

New claim 21 calls for the roughened portion to direct nitride compound emission away from the nitride compound. The frame of Shimizu appears smooth and therefore specularly reflective. Hence, the frame of Shimizu reflects light back into the nitride compound, rather than away from the nitride compound. The subject matter of new claim 21 is disclosed at least at ¶ [0025] of the present application.

Applicants therefore respectfully submit that new claim 21 contains allowable subject matter, and ask for an early indication of allowance of these claims.

**New claim 22 patentably distinguishes over the cited  
references**

New claim 22 calls for the contoured surface portion to include at least one of ridges, grooves, and dimples. The frame of Shimizu does not include a contoured surface portion with ridges, grooves, or dimples. The subject matter of new claim 22 is disclosed at least at ¶ [0025] of the present application.

Applicants therefore respectfully submit that new claim 22 contains allowable subject matter, and ask for an early indication of allowance of these claims.

**Amendment to paragraph [0026] of the specification**

Paragraph [0026] of the specification lost the subscripts in the electronic (EFS) submission. The amendment corrects these typographical errors.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 1-16 and 20-22 are now in condition for allowance. Notice to that effect is respectfully requested at the earliest possible date.

Respectfully submitted,  
**FAY, SHARPE, FAGAN,  
MINNICH, & MCKEE, LLP**



Scott A. McCollister  
Reg. No. 33,961  
1100 Superior Avenue  
Seventh Floor  
Cleveland, Ohio 44114-2518  
(216) 861-5582

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents, Washington, DC 20231, on MARCH 19, 2003

Georgeen B. George  
(SIGNATURE)  
GEORGEEN B. GEORGE

**MARKED-UP VERSION OF THE AMENDED SPECIFICATION, SHOWING  
CHANGES**

[0026] The group III-nitride compound 20 of the preferred embodiment includes binary compound materials of, for example, GaN, InN, AlN, ternary compound materials of, for example,  $[In_xGa_{1-x}N, Al_yGa_{1-y}N, In_zAl_{1-z}N]$  and/or quaternary compound materials of, for example,  $[In_uAl_vGa_{1-u-v}N]$   $In_xGa_{1-x}N$ ,  $Al_yGa_{1-y}N$ ,  $In_zAl_{1-z}N$ , where u, v, x, y, and z are fractional numbers between zero (0) and (1) exclusive and u+v is a fractional number between zero (0) and (1) exclusive. Such group III-nitride compounds 20 are preferred as providing blue or ultraviolet emission (i.e., wavelengths below about 500 nm), having good reliability, and benefiting from a relatively mature processing technology. In the preferred embodiment, the group III-nitride compound 20 includes GaN. However, other materials are contemplated.

**MARKED-UP VERSION OF THE AMENDED CLAIMS, SHOWING CHANGES**

1. (once amended) A light emitting device, comprising:  
a nitride compound, for providing at least one of blue and  
ultraviolet emission;  
an epoxy, embedded with a phosphor, mounted to the nitride  
compound; and  
a frame including a surface having [an uneven] a roughened  
portion contacting the epoxy.

7. (once amended) [The] A light emitting device [as set  
forth in claim 1, wherein] comprising:  
a nitride compound, for providing at least one of blue and  
ultraviolet emission;  
an epoxy, embedded with a phosphor, mounted to the nitride  
compound; and  
a frame including an [the] uneven portion that is a designed  
surface.

9. (once amended) [The] A light emitting device [as set  
forth in claim 1, wherein the frame further includes] comprising:  
a nitride compound, for providing at least one of blue and  
ultraviolet emission;  
an epoxy, embedded with a phosphor, mounted to the nitride  
compound; and  
a frame including a surface having an uneven portion  
contacting the epoxy and a smooth portion, substantially none of  
the phosphor embedded epoxy contacting the smooth portion.

10. (once amended) A system for converting light from a  
first range of wavelengths to a second range of wavelengths,  
comprising:

a semiconductor;  
a phosphor embedded epoxy contacting a first end of the  
semiconductor; and

a frame contacting the phosphor embedded epoxy, the frame including a surface portion contoured to increase a surface area in contact with the phosphor embedded epoxy.

16. (once amended) [The] A system for converting light from a first range of wavelengths to a second range of wavelengths, [as set forth in claim 10, wherein the frame includes] the system comprising:

a semiconductor;

a phosphor embedded epoxy contacting a first end of the semiconductor; and

a frame contacting the phosphor embedded epoxy, the frame including a designed surface, substantially all of the phosphor embedded epoxy contacting the designed surface.